

WHAT IS CLAIMED IS:

1. An apparatus for transporting plate-shaped work pieces, comprising:
a frame; and

5 an air-supplying-type support means, which is supported on the frame and which
supplies filtered air toward a lower surface of a plate-shaped work piece being transported
so as to contactlessly support the plate-shaped work piece, wherein the air-supplying-type
support means is provided with a dust-removal filter for removing dust and an air-supplying
means for supplying filtered air toward the lower surface of the plate-shaped work piece
10 through the dust-removal filter.

2. The apparatus for transporting plate-shaped work pieces according to claim 1,
further comprising:

a drive force application means for applying a drive force in a transporting
15 direction to the plate-shaped work piece;

wherein the drive force application means is provided with a drive rotor that
contacts both end portions in a width direction, which is perpendicular to the transporting
direction, of the plate-shaped work piece and applies a drive force thereto; and

wherein the air-supplying-type support means supports a portion located between
20 the end portions of the plate-shaped work piece.

3. The apparatus for transporting plate-shaped work pieces according to claim 1,

wherein the dust-removal filter and the air-supplying means are incorporated into a
single unit, forming an air-supplying unit, and the air-supplying-type support means is
25 formed by lining up a plurality of such air-supplying units in the transporting direction of the
plate-shaped work piece.

4. The apparatus for transporting plate-shaped work pieces according to claim 1,
wherein the air-supplying-type support means is provided with a plurality of the
dust-removal filters lined up in the transporting direction, and ventilation routes for
distributively supplying air from the air-supplying means to the plurality of dust-removal
5 filters.

5. The apparatus for transporting plate-shaped work pieces according to claim 1,
further comprising:

a transport casing covering a transport space in which the air-supplying-type
10 support means and a transporting route for the plate-shaped work piece are accommodated;

wherein the air-supplying means sucks in air within the transport casing and
supplies the sucked-in air through the dust-removal filter and toward the lower surface of the
plate-shaped work piece as filtered air, circulating the air within the transport space.

15 6. The apparatus for transporting plate-shaped work pieces according to claim 5,
wherein the transport casing is provided with an air discharge portion for
discharging some of the air within the transport space and an air introduction portion for
introducing outside air into the transport space.

20 7. The apparatus for transporting plate-shaped work pieces according to claim 6,
further comprising:

an outside discharge means for removing dust from air discharged from the air
discharge portion and discharging the air to the outside.

25 8. The apparatus for transporting plate-shaped work pieces according to claim 7,
further comprising:

an accommodation case covering, in a substantially airtight manner, an

accommodation space accommodating drive means for the drive rotor in the drive force application means, the accommodation case being adjacent to the lateral side of the transport casing;

wherein the air discharge portion of the transport casing discharges air within the transport space into the accommodation space; and

wherein the outside discharge means sucks in air within the accommodation space, filters that air, and discharges it to the outside.

9. The apparatus for transporting plate-shaped work pieces according to claim 1,

wherein the air-supplying-type support means is provided with a plate-shaped porous member that passes filtered air that has passed through the dust-removal filter, and a blocking portion that allows filtered air to flow through through holes of the porous member and conceals the through holes in the direction in which the filtered air flows.

10. The apparatus for transporting plate-shaped work pieces according to claim 1, comprising:

upper level and lower level transporting portions for transporting the plate-shaped work piece;

wherein of the two upper and lower level transporting portions, the upper transporting portion is capable of swinging upward about one end portion so as to open an upper area of the lower transporting portion.

11. The apparatus for transporting plate-shaped work pieces according to claim 1,

wherein the air-supplying means is capable of switching an air supply amount of air that is supplied toward a lower surface portion of the transported object between a first air supply amount for contactlessly supporting the transported object and a set air supply amount that is different from the first air supply amount.

12. The apparatus for transporting plate-shaped work pieces according to claim 11,
wherein the set air supply amount is less than the first air supply amount.
- 5 13. The apparatus for transporting plate-shaped work pieces according to claim 11,
wherein the set air supply amount is greater than the first air supply amount.
14. The apparatus for transporting plate-shaped work pieces according to claim 1,
wherein a first circulation path that allows air to flow downward is formed to the
10 side of the air-supplying-type support means.
15. The apparatus for transporting plate-shaped work pieces according to claim 1,
wherein a second circulation path for discharging downward the filtered air that has
been supplied to the lower surface of the plate-shaped work piece is formed in the
15 air-supplying-type support means at an intermediate location in the width direction, which is
perpendicular to the transporting direction, of the plate-shaped work piece.
16. The apparatus for transporting plate-shaped work pieces according to claim 15,
wherein the air-supplying-type support member has air-supplying units in which
20 the dust-removal filter and the air-supplying means are incorporated into a single unit, and
which are lined up in the transporting direction and the width direction; and
wherein the second circulation path is formed by separating the air-supplying units
lined up in the width direction.
- 25 17. The apparatus for transporting plate-shaped work pieces according to claim 15,
comprising:
a discharged air amount adjustment means for adjusting the amount of air

discharged over the second circulation path.

18. The apparatus for transporting plate-shaped work pieces according to claim 17,
wherein the air-supplying-type support means is provided with a porous member,
5 which is located at an upper portion thereof and which is for rectifying the filtered air that is
supplied onto the lower surface of the plate-shaped work piece; and

wherein the porous-member is provided with a ventilation portion that permits
ventilation into the second circulation path.

10 19. The apparatus for transporting plate-shaped work pieces according to claim 18,
wherein the porous member is partitioned in the width direction and formed by a
plurality of plate-shaped portions, and the ventilation portion is formed by positioning the
plurality of plate-shaped portions leaving a spacing between them in the width direction; and
wherein the discharged air amount adjustment means adjusts the spacing between
15 the plate-shaped portions of the porous member, adjusting the amount of air discharged
through the second circulation path.

20. The apparatus for transporting plate-shaped work pieces according to claim 18,
wherein the discharged air amount adjustment means is provided with an
20 adjustment plate for adjusting an extent of the opening of the ventilation portion.

21. The apparatus for transporting plate-shaped work pieces according to claim 16,
wherein the air-supplying-type support means is formed by the air-supplying units
lined up in the transporting direction, and a third circulation path that discharges the filtered
25 air supplied onto the lower surface of the plate-shaped work piece downward is formed by
separating the air-supplying units lined up in the transporting direction.

22. The apparatus for transporting plate-shaped work pieces according to claim 15, further comprising:

a drive force application means for applying a drive force in the transporting direction to the plate-shaped work piece;

5 wherein the drive force application means is provided with a drive rotor for supporting an end side of the plate-shaped work piece in a contacting manner, a driven rotor for supporting the other end side of the plate-shaped work piece in a contacting manner, a drive mechanism for driving the drive rotor, and a transmission mechanism for transmitting the motive force of the drive mechanism to the driven rotor;

10 wherein the drive force application means is configured such that it applies a drive force while supporting both end portions of the plate-shaped work piece in a contacting manner with the drive rotor and the driven rotor; and

wherein the transmission mechanism is disposed in the second circulation path.

15 23. A apparatus for transporting plate-shaped work pieces comprising:

a frame;

a motor supported on the frame;

a fan, which is driven by the motor and which sends air upward;

a dust-removal filter disposed above the fan;

20 a plate-shaped porous member, which is disposed above the dust-removal filter and which has a plurality of apertures that allow air from the fan to pass upward; and

a circulation aperture formed in the porous member that allows the air to pass downward.

25 24. The apparatus for transporting plate-shaped work pieces according to claim 23,

wherein the fan and the dust-removal filter are supported with in a housing adapted to be supported on the frame and are thus incorporated into an air-supplying unit.

25. The apparatus for transporting plate-shaped work pieces according to claim 24,
wherein a plurality of air-supplying units are disposed in a direction perpendicular
to the transporting direction of the plate-shaped work piece, and a spacing between two
5 adjacent air-supplying units allows air in the downward direction that has passed through the
circulation aperture to pass through.